I will conclude by remarking, that the family of *Planariæ* is most widely diffused, and is adapted to the most different stations: on the land, it is adapted to forests and plains, in hot, temperate, and dry climates; in water, under all latitudes, to fresh, brackish and salt, on sea-beaches, at the depth of 30 fathoms, and in the open ocean.

XXX.—*Catalogue of Irish Entozoa, with observations.* By O'Bryen Bellingham, M.D., Fellow of and Professor of Botany to the Royal College of Surgeons in Ireland, Member of the Royal Zoological, Geological and Natural History Societies of Dublin, &c.

[Continued from p. 165.]

Genus 17. Bothriocephalus.

(Derived from *βοθρίον*, *fovea*, and *κεφαλή*, *caput*.)

Gen. Char.—Body long, flat, soft, and articulated. Head subtetragonal, with two or four opposite depressions.

The genus *Bothriocephalus* was established by Rudolphi, and has been adopted by all zoologists since. Previous to his time the species were confounded with those of the genus *Tænia*.

The species are common in fish and birds, more rare in the mammalia, and very rare in reptiles; they usually inhabit the alimentary canal, sometimes the abdominal cavity. The genus is not very numerous in species, only thirty-four being enumerated by Rudolphi, of which ten are doubtful. He has arranged them in two subdivisions; in one the head is armed, in the other this part is naked or unarmed.

A. Inermes.

a. *Dibothrii.*

1. *Bothriocephalus latus* *.. Small intestines of man (*Homo*).
2. ——————— *claviceps*. Intestines of eel (*Anguilla acutirostris*).

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* We are indebted to Bonnet for the first description approaching to accuracy of the *Bothriocephalus latus*; but it is only within a few years that its zoological characters have been properly understood, and we are indebted to Bremser for having first determined these, who removed it from the genus *Tænia*, to which it had long erroneously been supposed to belong.

The *Bothriocephalus latus* is the only species of the genus which inhabits the human intestines, and it has received a number of different names. It is the *Tænia lata* of Linnæus, Pennant and Turton; the *Tænia* 'articulos non demittens' and the *Tænia* 'à anneaux courts' of earlier writers; the *Tænia vulgaris* and *Tænia grisea* of others; the *Tænia inerme umana* of Brera; the *Tænia osculis superficialibus* of

3. *Bothriocephalus proboscideus* *.	Intestines and pyloric appendages of salmon (*Salmo Salar*). Pyloric appendages of salmon trout (*Salmo Trutta*). Intestines of Gillaroo trout (*Salmo Fario*, var.).

Hooper; *le Tænia large* of Cuvier; and *le Bothriocephale de l'homme* of Lamarck.

The colour of this species is white, seldom however so pure a white as the *Tænia solium*. After it has remained in spirits of wine it often acquires a grayish tinge, from which circumstance Pallas gave it the name of *Tænia grisea*.

The head has somewhat an ovoid shape; the neck is in general not distinct. The articulations of the body are very broad in proportion to their length. The orifices which lead to the ovaries are situated in the centre of the flat surface of each articulation, and around them the oviducts are seen, which have a radiated or stellate appearance. In some instances we can distinguish a minute body projecting from the genital pore, which is supposed to be the male organ.

The *Bothriocephalus latus* inhabits exclusively the small intestines, and as many as three or four have been found in the same individual. Its length is variable, but is said to be in general greater than that of the *Tænia*. It seldom or never parts with single joints (as occurs with the *Tænia solium*), owing to the longitudinal muscular fibres being continued from one articulation to another; in the *Tænia solium* these fibres are distinct in each articulation.

The *Bothriocephalus latus* is not uncommon in the intestines of the inhabitants of Poland, Russia, and part of France. It is so general in some parts of Switzerland as to have received the name 'Ver de Genève.' It is very rare in England, Germany, Holland, India, Egypt and the United States, where it is replaced by the *Tænia solium*. The only specimen which I possess is a portion of one found in the intestines of an individual who died several years ago in one of the Dublin hospitals, which was given to me by my friend Dr. Aquilla Smith of this city. I have only heard of two other instances in which it has occurred in Dublin; once it was met with by the late Dr. Macartney, and once by Dr. Graves, but I have had no opportunity of examining the specimens in either case.

* The *Bothriocephalus proboscideus* is exceedingly common in the genus *Salmo*; it is a very beautiful species, and will live for several days after the death of the animal which it inhabits. It abounds most in the largest and fattest salmon. I have found them in such numbers in the intestines and pyloric appendages of the *Salmo Salar* as almost completely to block up these parts, which contained nothing besides but a white tenacious mucus. The fish in which they were most numerous were amongst the finest in the market; which would help to prove, that in these animals at least, the pre-

4. *Bothriocephalus infundibuliformis* ? * — Intestines and pyloric appendages of salmon trout (*Salmo Trutta*).

5. ———— *microcephalus* † .... — Intestines of sun-fish (*Orthagoriscus Mola*).

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sence of entozoa in the alimentary canal is not to be regarded as the result of disease.

* In the intestines and pyloric appendages of the salmon trout (*Salmo Trutta*) I have, upon several occasions, found a *Bothriocephalus* which has many of the characters of *B. infundibuliformis.* It resembles generally the *B. proboscideus*, but differs from it in some respects.

The length is about 12 inches or upwards; colour white; body thick; diameter a third of a line anteriorly, 2 lines posteriorly. The head is large, triangular or subsagittate; the depressions (*bothrii*) deep and of an oblong shape. The neck is very distinct, and has a greater diameter than the articulations immediately next to it; the articulations near the neck are somewhat funnel-shaped; in the rest of the body each second joint is more than double the length of that before it; near the posterior extremity all the articulations are short; the terminal joint is twice or three times the length of those anterior to it, and is rounded at its extremity. A depressed median line is seen upon the body running its whole length.

When the animal is alive and in motion the shape of its head varies much, and when protruded fully it presents nearly the same character as after lying in spirits of wine; at other times the bothrii resemble merely two longitudinal lines; when the animal is very much contracted, the head resembles a rounded tubercle, with two circular depressions upon its anterior surface. In a large specimen now before me the head has a much greater diameter than the articulations nearest it, its base being nearly double their width. The bothrii are enlarged, contracted and elongated constantly; and when the body is fully contracted the animal appears to be almost cylindrical.

† In the intestines of a very large sun-fish (*Orthagoriscus Mola*) which I examined, and which is now in the museum of the Natural History Society of Dublin, I found an immense number of the *Bothriocephalus microcephalus*, several of which lived in a vessel of fresh water for twenty-four hours.

The longest measured upwards of 3 feet in length; at the widest part of the body it was something more than 3 lines in diameter. Colour white. The head is small, triangular or sagittate, and terminates anteriorly in a little papillary eminence. The bothrii, two in number, are of an oval shape, though wider posteriorly. There is no neck. The anterior articulations are funnel-shaped, becoming longer gradually; the next are shorter; the terminal articulations appear to be merely transverse rugæ in some specimens; the last articulation is more acute than the others. This species is believed to be peculiar to the sun-fish.

6. *Bothriocephalus punctatus**.	Intestines of turbot (*Pleuronectes maximus*).	
	Intestines and pyloric appendages of sea-scorpion (*Cottus Scorpius*).	
7. ——— ——— *solidus*†..	Abdominal cavity of stickleback (*Gasterosteus aculeatus*).	

* The *Bothriocephalus punctatus* is very common in the intestines of the turbot (*Pleuronectes maximus*), and of the sea-scorpion or father-lasher (*Cottus Scorpius*). Dr. Drummond has found it in addition in the brett or brill (*Pleuronectes rhombus*), and it has been very accurately described by him in the New Series of the 'Mag. of Nat. Hist.' for the year 1839. I shall therefore only observe here, that the peculiarity in this species which is noticed by Rudolphi was apparent in my specimens, viz. that this animal when recent is perfectly white, but after having remained for some time in spirits of wine or in water, a black spot appeared in the centre of each articulation in the situation of the ovaries. My friend Dr. Drummond has also noticed this circumstance, and considers that it is connected in some way with the maturity of the ova.

† Although I have examined a large number of the *Gasterosteus aculeatus*, I have not succeeded in finding the *Bothriocephalus solidus*, and have placed it in this list on the authority of my friend Dr. Allman, the Professor of Botany in Trinity College, Dublin, who discovered it in specimens of the *Gasterosteus aculeatus* from the neighbourhood of Cork. Its habitat differs from that of most species of *Bothriocephalus*, as it occurs only in the cavity of the abdomen, not in the intestinal canal. The animal which it inhabits would appear sometimes to have the power of getting rid of it, as the *B. solidus* has been found alive in the water of ponds in which these fish are abundant. It is probable that from this circumstance Linnæus was led to the opinion that the *Tænia* (to which genus it formerly was supposed to belong) could exist out of the bodies of living animals. Dr. Baer relates, that "in an excursion up the Pregel with the late Prof. Eysenhandt in search of water-plants, the first object which attracted our attention was a tape-worm; on continuing our searches we found nearly a dozen in the water, four of which were alive, the others dead or nearly so. This (he adds) brought to my recollection Linnæus's *Tænia*, found in water. With the exception of vast numbers of the *Gasterosteus pungitius*, scarcely any other animal was observed in the water. Many of these fish were taken; in all the abdomen appeared much swollen, and on opening them a *Bothriocephalus solidus* was found, which, when extended, was longer than the fish in which it was contained. Every specimen of fish we opened contained a worm, and the fishermen assured us that they were rarely met with without them. It is supposed that these worms escape, or are forced from the fish into the water, in which they will live for a considerable time."

8. *Bothriocephalus nodosus* .. { Small intestines of pomarine skua (*Lestris pomarinus*). / Small intestines of dusky grebe (*Podiceps obscurus*).

b. *Tetrabothrii.*

9. *Bothriocephalus macrocephalus**. { Small intestines of second-speckled diver (*Colymbus septentrionalis*). / Small intestines of horned grebe (*Podiceps cornutus*).

10. ——— *tumidulus*.... Intestines of skate (*Raia Batis*).

B. Armati.

(*Omnes tetrabothrii.*)

a. *Uncinati.*

11. *Bothriocephalus coronatus.* Large intestines of skate (*Raia Batis*).

b. *Proboscidei.*

12. *Bothriocephalus corollatus.* { Stomach, small and large intestines of dog-fish (*Squalus Acanthias*).

13. ——— *paleaceus* . { Large intestines of dog-fish (*Squalus Acanthias*).

Species dubiæ.

14. *Bothriocephalus* †. { Intestines and pyloric appendages of cod (*Gadus Morrhua*). / Intestines and pyloric appendages of haddock (*Gadus Æglefinus*).

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* Upon several occasions I have found the *Bothriocephalus macrocephalus* in large numbers in the small intestines of the second-speckled diver (*Colymbus septentrionalis*). They usually were most abundant in that part of the intestinal canal near the gizzard; none existed in the large intestines. They are from 2 to 6 inches and upwards in length; colour white; the articulations very readily separate from one another when the animal is placed in water. The head is large, and somewhat tetragonal in shape, with four lateral depressions, two upon each side; each is contracted in the centre of the long diameter, which gives it the appearance of being divided into two portions. The neck is very short; in some the greatest diameter of this part was next the head, in others next the body. The articulations in front are almost linear; they then increase in length and eventually become campanulate.

† The species of *Bothriocephalus* which inhabits the intestines and pyloric appendages of the cod (*Gadus Morrhua*) and of the haddock (*G. Æglefinus*) is exceedingly common. I have seldom examined one of these fish without finding it, and yet it has been altogether overlooked by Rudolphi and other writers. That it is a *Bothriocephalus*

15. *Bothriocephalus* . Large intestines of skate (*Raia Batis*).
16. ————————*. Small intestines of little grebe (*Podiceps minor*).
17. ————————. . Intestines of arctic tern (*Sterna arctica*).
18. ————————.. Large intestines of red-necked grebe (*Podiceps rubricollis*).

appears from the disposition of the ovaries, but I have never succeeded in detecting the bothrii upon the head; in fact this part is inclosed in a kind of tubercle which is found upon the peritoneal surface of the pyloric appendages (the body of the animal lying loose in the intestines), and I have drawn this part out to a very fine point, but have not been able to determine its characters. My friend Dr. Drummond has also found this species in abundance in cod taken in the neighbourhood of Belfast.

* In the intestines of the little grebe (*Podiceps minor*) I found several specimens of a *Bothriocephalus* which does not appear to have been described, and which seems to unite the genus *Ligula* with the *Bothriocephalus*. It belongs to the first division in Rudolphi's arrangement, *Inermes*, and to the subdivision *Dibothrii*. The length is from an inch and a half to two inches; colour when recent reddish yellow. The head is somewhat subsagittate; the bothrii, two in number, are placed, one upon the dorsal, the other upon the abdominal surface of this part; they are long, slightly elliptical, or in the form of a simple fissure, extending the whole length of the head and reaching into the articulation next it. There is no neck. The articulations are broad, rugose, and very short. In the centre of the posterior articulations the circular orifices of the ovaries are seen, from each of which a *lemniscus* projects, which is long and clavate.

XXXI.—*On the British* Desmidieæ. By John Ralfs, Esq., M.R.C.S., Penzance*.

[With a Plate.]

Tetmemorus, n. g.

Frond simple, elongated, straight, cylindrical or subcylindrical, slightly constricted in the middle; segments emarginate at the end, but otherwise quite entire.

I have instituted this genus for the reception of two plants which are placed in *Closterium* by Meneghini, but do not well agree with the other species in that genus.

The fronds are elongated as in *Closterium*, from which, however, this genus may easily be distinguished by the emarginate ends; the same character and the elongated fronds will separate it from *Cosmarium*.

From *Euastrum*, with which it agrees in the emarginate extre-

* Read before the Botanical Society of Edinburgh, April 11, 1844.